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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,359	08/06/2003	William Grant	IR-2553 DIV	8877

7590 05/18/2005  
OSTROLENK, FABER, GERB & SOFFEN, LLP  
1180 Avenue of the Americas  
New York, NY 10036-8403

EXAMINER

NGO, NGAN V

ART UNIT PAPER NUMBER

2818

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

877

**Office Action Summary****Application No.**

10/635,359

**Applicant(s)**

GRANT, WILLIAM

**Examiner**

Ngan Ngo

**Art Unit**

2818

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 February 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-20 is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All. b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

The amendment filed February 24, 2005 has been entered and made of record as paper no. 0205.

Claims 1-13 stand rejected under 35 U.S.C. 102(b) as being anticipated by Kagawa (US-5,371,405, cited by Applicant).

Kagawa discloses a power module comprising at least one power device (6), a housing element (13), a lead frame (3) including a conductive pad having large area to receive the power device, a heat sink (1), and a thermally conductive but electrically insulating material (2) interposed between and indirect contact with a second open surface of the conductive pad and heat sink. Note figure 1(b) of Kagawa.

In re claim 2, the house element 13 includes a molded rim surrounding the conductive pad.

In re claim 3, figure 2 show a plurality of conductive pads.

In re claim 4, the semiconductor devices are connected together as shown in figures 2-5.

In re claim 5, Kagawa shows power bus and common conductive pads in figures 2-5. Note elements 2-4, 9, and 11

In re claim 6, the conductive pads in Kagawa are isolated from each other as shown in figure 1(b).

In re claim 8, figure 1(b) clearly shows the wire bond.

In re claims 11 and 12, the circuit board is formed inside of the housing as shown in figure 1(a).

In re claim 13, the conductive bars (10 and 12) are formed on opposite side of the housing element.

Claims 14-20 stand allowed.

Applicant's arguments filed February 24, 2005 have been fully considered but they are not persuasive.

Claim 1 does not define any thermally conductive material; therefore it is broad enough to include ceramic material. Applicant's argument is narrower than what is claimed. The cost of making the module has nothing to do with the claimed structure. The "metallization layers" in Kagawa are conductive pad that is integrally connected to an external lead for external connection. The housing element (13) in Kagawa does not have the bottom portion; that is the opening in the housing element through which a surface of the conductive pad opposite to the surface on which the die resides is exposed.

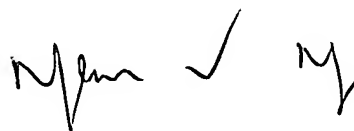
**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Examiner Ngan Ngo at telephone number (571) 272-1711. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Ngan Van Ngo', followed by a checkmark and a small 'M'.

**Ngan Van Ngo**  
**Primary Examiner**

Ngan Ngo

May 14, 2005